POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION
01 STATE: MA | 02 SITE NUMBER: MAD981068273

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
VITALE SITE	L.P. Henderson Road

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Beverly	MA	01915	Essex	009	05

09 COORDINATES LATITUDE	LONGITUDE
42° 35' 30"	70° 54' 30"

10 DIRECTIONS TO SITE (Starting from nearest public road)
From Rte 128 - take exit 20N to Rte 1A North, left. on Conant St., 1st right on Rte 97 N. for .9 mi, left on L.P. Henderson Rd. Vitale Site is .2 mile on right.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
City of Beverly	City Hall, 191 Cabot St.

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Beverly	MA	01915	( )

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
C. Ronald Vitale	17 Cobbler's Lane

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
Beverly	MA	01915	( )

13 TYPE OF OWNERSHIP (Check one)
☐ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☒ E. MUNICIPAL
☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE ___/___/___ (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)
☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☒ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)
CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)
☐ A. ACTIVE ☒ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
1950s (BEGINNING YEAR) | PRESENT (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED
The site has been filled with fly ash from Salem Power Plant, demolition debris, and other fill. Underground gasoline and oil tanks were removed from the site. At least one of the tanks had leaked, contaminating soil at the site. VOCs commonly associated with solvents were found in soil samples from borings on site.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
The site is adjacent to a wetland and associated stream that empties into Wenham Lake, the water supply for the cities of Beverly and Salem (population 80,000). A potential exists for contamination from the site to reach Wenham Lake, approximate distance of 1/4 mile.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☒ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
Steve Johnson	DEQE DHW/NERO	(617) 935-2160

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Steve Johnson	DEQE	DHW	(617) 935-2160	12 / 1 / 87 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

SEMS DocID 605750

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MA	MAD981068273

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☐ A. GROUNDWATER CONTAMINATION — 02 ☐ OBSERVED (DATE. _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☒ B. SURFACE WATER CONTAMINATION — 02 ☒ OBSERVED (DATE. 12/74,1/75) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED _____ 04 NARRATIVE DESCRIPTION

Surface water samples from airport stream contained fly ash and elevated levels of solids, sodium, and chlorides.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE. _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED. _____ 04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE. _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE. _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

UNKNOWN

01 ☒ F. CONTAMINATION OF SOIL — 02 ☒ OBSERVED (DATE. 11/84) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ (Acres) 04 NARRATIVE DESCRIPTION

Low levels of volatile organic compounds (VOCs) were found in oil samples from borings at the site. Petroleum products also contaminated soil on site.

01 ☒ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE. _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 80,000 04 NARRATIVE DESCRIPTION

If contaminants become dissolved in the groundwater or surface water at the site they may migrate toward Wenham Lake, the water supply for Beverly and Salem (population 80,000).

01 ☐ H. WORKER EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE. _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☒ POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE. _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

The general population would become exposed if the drinking water supply, Weham Lake became contaminated.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MA	MAD981068273

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

UNKNOWN

01 ☐ K. DAMAGE TO FAUNA
04 NARRATIVE DESCRIPTION (Include name(s) of species)
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

UNKNOWN

01 ☐ L. CONTAMINATION OF FOOD CHAIN
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

UNKNOWN

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums)
02 ☒ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

Fly ash from the site has been seen in the wetland adjacent to the site and at the delta of Airport Stream and Wenham Lake, 1/4 mile from the site.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

UNKNOWN

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

UNLIKELY: Site is not tied in to these.

01 ☒ P. ILLEGAL/UNAUTHORIZED DUMPING
04 NARRATIVE DESCRIPTION
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

Suspected

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 80,000 - if water supply becomes affected.

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analyses, reports)

DEQE/NERO Files

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MA	MAD981068273

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

☐ A SOLID ☐ E SLURRY
☐ B POWDER, FINES ☐ F LIQUID
☐ C SLUDGE ☐ G GAS
☐ D OTHER UNKNOWN (Specify)

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS _____
CUBIC YARDS _____
NO OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

☐ A TOXIC ☐ E SOLUBLE ☐ I HIGHLY VOLATILE
☐ B CORROSIVE ☐ F INFECTIOUS ☐ J EXPLOSIVE
☐ C RADIOACTIVE ☐ G FLAMMABLE ☐ K REACTIVE
☐ D PERSISTENT ☐ H IGNITABLE ☐ L INCOMPATIBLE
☐ M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			found in soil on site
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			found in soil on site
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Methylene Chloride	75-09-2	found in $oil	100 ug/l	
SOL	1,1,1-trichloroethane	67-66-3	"	300 ug/l	
SOL	1,2-dichloroethane	107-06-2	"	20 ug/l	
OCC	napthalene	91-20-3	"	trace	
OCC	2-methylnapthalene	unknown	"	trace	

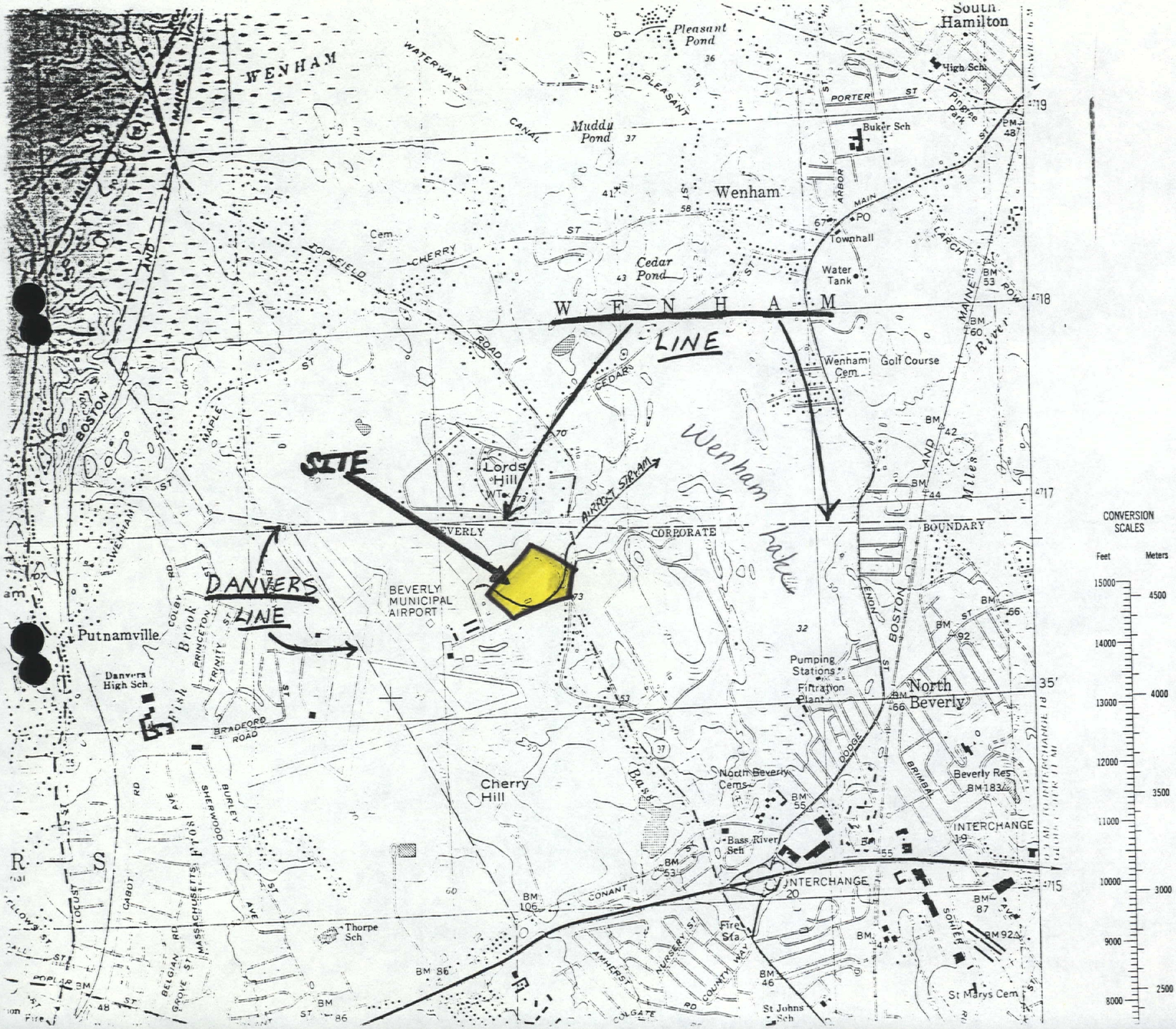
V. FEEDSTOCKS (See Appendix for CAS Numbers)

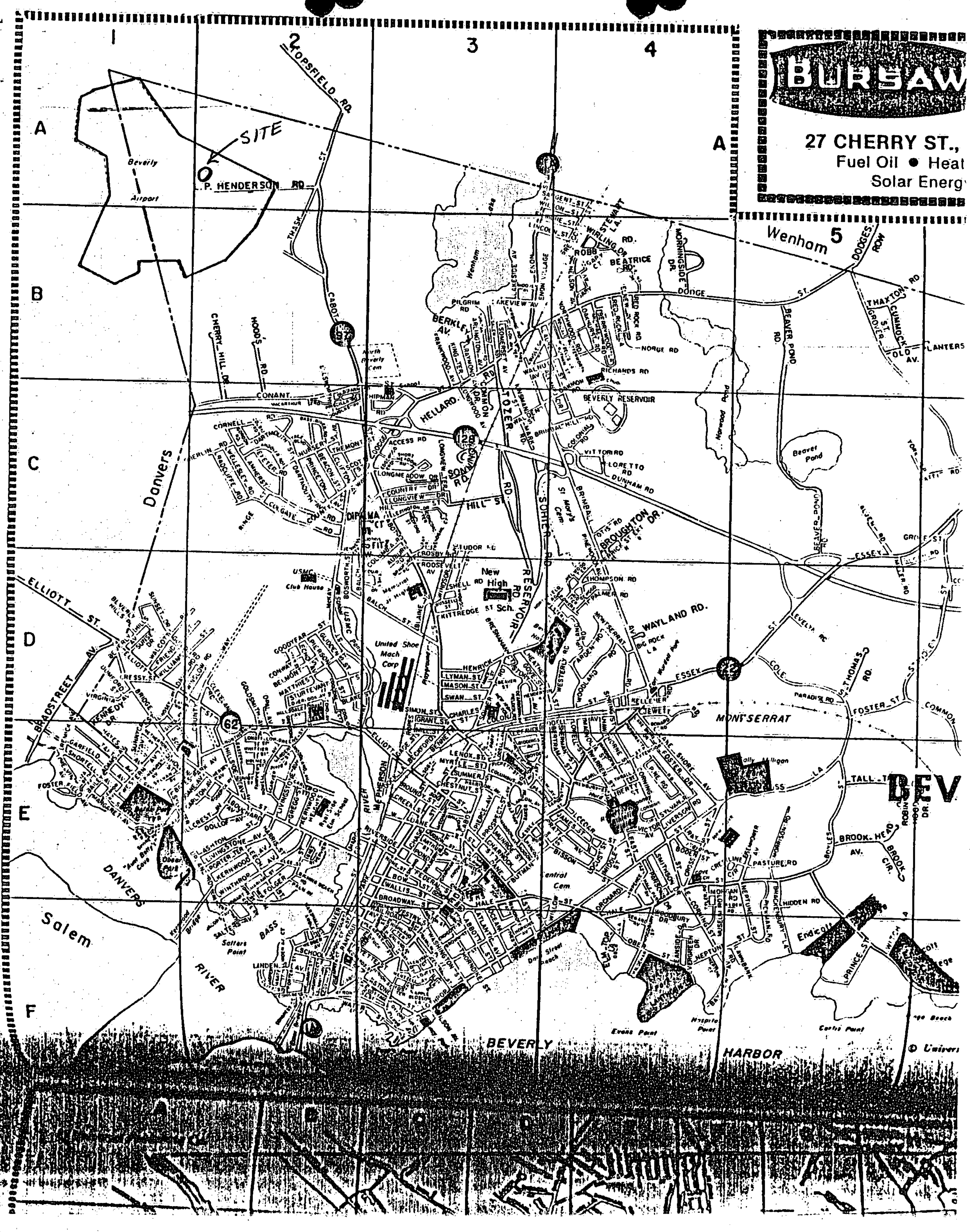
CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

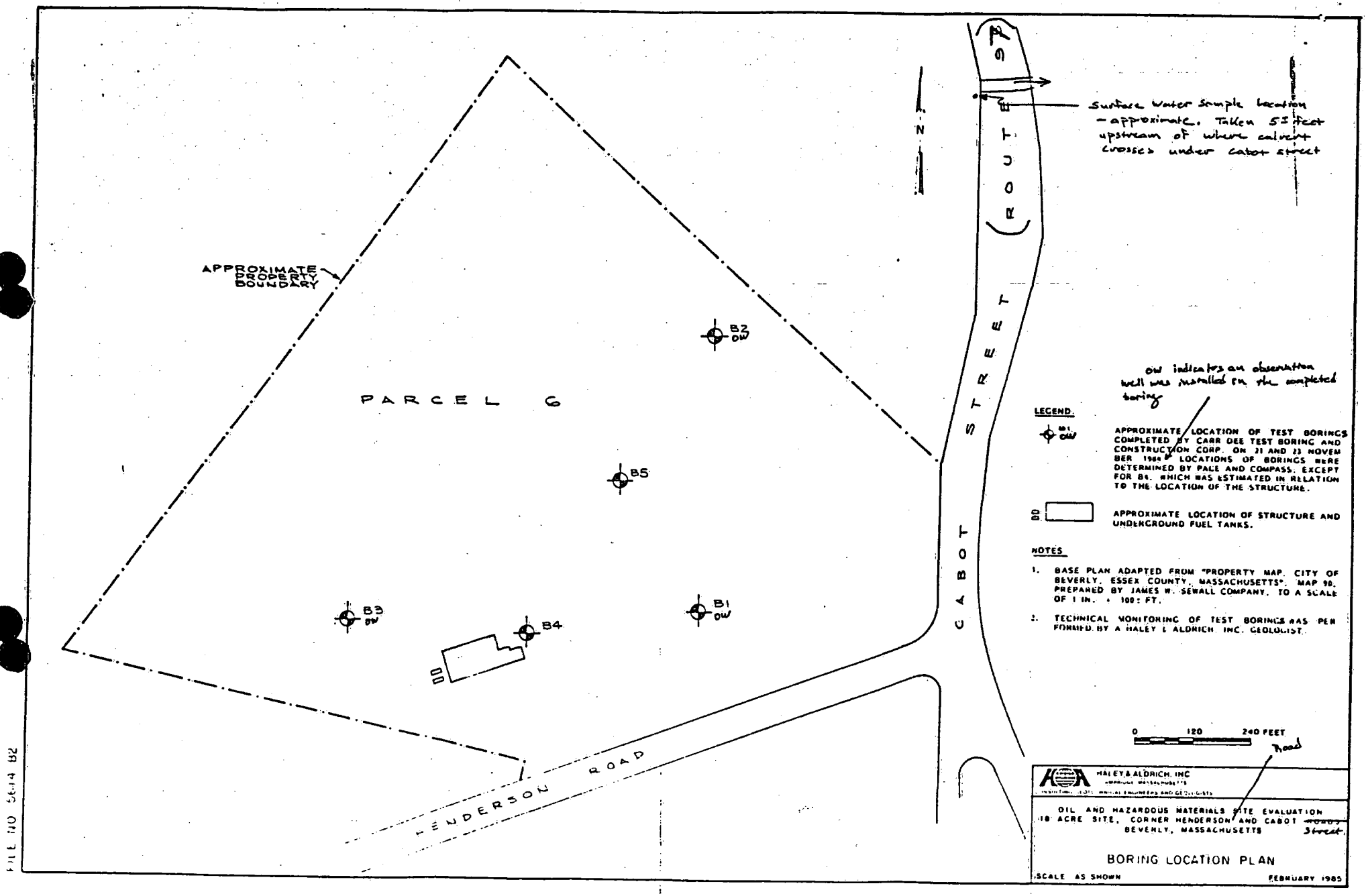
VI. SOURCES OF INFORMATION (Cite specific references e.g., state files, sample analysis reports)

DEQE/NERO Files

Attachment 1


South Hamilton
High Sch
Pleasant Pond
WENHAM
Muddy Pond
Buker Sch
Pingree Park
Wenham
PO
Townhall
Water Tank
Cedar Pond
Cem
W E N H A M
LINE
Wenham Cem
Golf Course
Wenham lake
SITE
AIRPORT STREAM
Lords Hill
BEVERLY CORPORATE BOUNDARY
DANVERS LINE
BEVERLY MUNICIPAL AIRPORT
Putnamville
Danvers High Sch
Pumping Stations
Filtration Plant
North Beverly
Cherry Hill
North Beverly Cems
Beverly Res
Bass River Sch
INTERCHANGE 19
INTERCHANGE 20
Thorpe Sch
Fire Sta
St Marys Cem
St Johns Sch
CONVERSION SCALES
Feet
Meters


BURSAW
27 CHERRY ST.,
Fuel Oil ● Heat
Solar Energy
SITE
Beverly Airport
P. HENDERSON RD
TOPSFIELD RD.
CABOT ST.
CONANT ST.
HELLARD RD.
TOZER RD.
SOHIER RD.
RESERVOIR RD.
BEVERLY RESERVOIR
DODGE ST.
Wenham
Wenham Lake
Danvers
ELLIOTT ST.
BRADSTREET AV.
United Shoe Mach Corp
USMC Club House
New High Sch.
WAYLAND RD.
ESSEX ST.
COLE ST.
FOSTER ST.
MONTSERRAT
BEAVER POND RD.
Beaver Pond
Norwood Pond
Central Cem.
St Mary's Cem.
Salem
DANVERS RIVER
BASS RIVER
Salters Point
Dane Street Beach
Hospital Point
Evans Point
BEVERLY HARBOR
Endicott
BEV
© Univers



FILE NO 5614-82

FIGURE 2

Attachment 2

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering
Metropolitan Boston - Northeast Region
5 Commonwealth Avenue
Woburn, Massachusetts 01801

S. RUSSELL SYLVA
Commissioner

MEMORANDUM

TO: Helen Waldorf, DHW, Boston

THRU: Stephen Johnson, DHW, NERO

FROM: Lauri Jacobson, DHW, NERO

DATE: December 14, 1987

SUBJECT: BEVERLY - Vitale Flyash & Solid Waste Dumpsite
L.P. Henderson Road, Beverly, MA
DEQE Case #3-235 - EPA ID#MAD981068273
PRELIMINARY ASSESSMENT REPORT

This Preliminary Assessment report has been completed by a representative of the Department of Environmental Quality Engineering (DEQE) under the obligations of the Multi-Site Cooperative Agreement (MSCA).

SITE LOCATION

The Vitale Flyash & Solid Waste Dumpsite (the site) is located in the northeast section of the Salem Quadrangle of the U.S.G.S. topographic map. The site is an 18 acre parcel which is represented as Lot 6 on Page 90 of the Beverly Assessors Map, and is located near the Wenham and Danvers town lines. The site is separated from the former Casco Chemical site (EPA ID#MAD002577617) to the west by woodland and is bounded to the south by L.P. Henderson Rd., to the north by an undeveloped parcel, and to the east by Cabot Street (Rte. 97). The nearest residences are less than 1/4 mile from the site. Wenham Lake is located approximately 1/4 mile from the site. A stream that originates at Beverly Airport (west of Casco Chemical) runs through the site and empties to Wenham Lake. (see Attachment 1)

SITE DESCRIPTION

The 18-acre site is currently filled with up to 30 feet of flyash. Other solid wastes and demolition debris have also been landfilled at the site. Vegetation covers most of the filled portion of the site. There is one building on-site which is accessed via a driveway off L.P. Henderson Road. The one-story structure houses offices and a garage used for automotive repairs. Wetlands associated with Airport Stream exist on-site and have been slowly filled by the erosion of flyash from the filled portion of the site into the low-lying wetlands. See Attachment 1 for a graphic idea of the locations of Airport Stream, Rte. 97, L.P. Henderson Rd., and Wenham Lake.

HISTORY OF THE SITE

The Vitale brothers, Michael and Stephen, originally owned the property in the 1950's. The site was used as a base for their construction companies. It is reported that during this time period, sand and gravel was mined from the site for use in their construction activities, or for clean fill. The New England Power Co. had an arrangement to dispose salt water quenched fly ash from their Salem Power Station at the site to fill the gravel pits on the property. The City of Beverly took over ownership of the site for failure of previous owners to pay real estate taxes.

Over the years solid waste other than fly ash has also been dumped at the site, including demolition debris, asphalt roof shingles, asbestos siding, rubber tires, mattresses, household appliances, wood timbers, metal scraps, car bodies, municipal refuse, and empty steel drums. Because of complaints from residents, public interest groups, and town officials that waste at the site was not permitted or handled properly and because the site is so close to the water supply reservoir for the Cities of Beverly and Salem, the Commonwealth of Massachusetts initiated a site inspection, took stream samples, and issued an Administrative Order to Mr. Ronald Vitale and the City of Beverly to assess and clean up the site (see Attachment 4). (Previous DEQE efforts at enforcing site cleanup are addressed in the Enforcement/Noncompliance Section of this Preliminary Assessment).

NATURE OF HAZARDOUS MATERIALS-DESCRIPTION OF HAZARDOUS CONDITIONS

Representatives of DEQE have inspected the site and witnessed uncontrolled disposal of solid waste and fly ash. It is suspected that the former gravel pits have been filled with waste similar to that which has been observed and/or waste of unknown origin. There are no records of what has been disposed at the site; it is possible that various hazardous materials are buried on the property.

DEQE inspectors observed oil-stained soil at the site. It was determined that this area of stained soil was in the vicinity of four underground storage tanks. The contents of the tanks was reported as gasoline, diesel fuel, heating fuel, and waste oil. The tanks were subsequently removed. At least one of the tanks had leaked, and seventy five cubic yards of contaminated soil from around the leaky tank (and in the area of the surface soil staining) was excavated and removed off-site (Attachment 4).

Boring logs in a Haley & Aldrich report indicate that the site has been filled to a depth of 14 to 36 feet below grade. Fly ash layers were encountered at depths of up to 30 feet.

Cambridge Analytical Associates, Inc. analyzed composite soil samples from the above mentioned borings at the site and reported finding 100 ppb of methylene chloride, 20 ppb of 1,2-dichloroethane, 300 ppb of 1,1,1-trichloroethane, a trace of napthalene and a trace of 2-methyl napthalene. These compounds do not occur naturally in the environment. The above mentioned compounds, except for napthalene, are found in solvents and degreasers. Napthalene is used in a variety of products and industrial processes. These compounds are considered to be toxic and methylene chloride and 1,2-dichloroethane are suspected carcinogens (Attachment 2).

Groundwater was observed at 10 to 21 feet below grade. It is possible that contaminants in the fill and/or ash could be leached into the groundwater at the site.

The banks of the wetland adjacent to the filled area of the site are eroding thereby slowly filling the adjacent wetland. Flyash has been observed in Airport Stream which drains the filled wetland. A delta of fly ash has been formed at the convergence of Airport Stream and Wenham Lake. Attachment 5 includes the results of chemical analysis performed on Salem Power Plant flyash.

Analyses of water samples taken from Airport Stream downstream from the site show elevated levels of total coliform, fecal coliform, suspended solids, total solids, conductivity, iron, chloride, sodium, ammonia, pH, and alkalinity when compared to upstream samples. No VOCs or priority pollutants were found in the downstream surface water samples (Attachment 3).

In summary, fly ash, solid waste, petroleum products, and possibly other hazardous materials have been stored and disposed at the site. It is unknown what other materials have been used as fill. A complete site assessment is needed to better understand the nature of hazardous materials that may be present.

Since the site is in such close proximity to Wenham Lake, the water supply reservoir for the cities of Beverly and Salem (combined population of 80,000), it is important to perform a complete site assessment as soon as possible in order to prepare for the appropriate removal, containment, or treatment of materials found on-site.

NONCOMPLIANCE/ENFORCEMENT

The Vitale site has a long record of noncompliance with local and State laws and regulations. The first official documentation of this in DEQE records is a letter dated March 25, 1969 regarding a Massachusetts Division of Water Pollution Control inspection of the Vitale property. It is noted that holes at the site are being filled with fly ash without the necessary Beverly Board of Health permit, as required by MGL Chapter 111 Section 150A.

On September 17, 1971 a Subpoena, Notice and Restraining Order was issued to Michael and Stephen Vitale, their construction companies and subcontractors to refrain from any more work impacting the wetland at the site as it is a violation of MGL Chapter 131 Section 40.

On June 13, 1973 Mass Department of Natural Resources (DNR) sent a letter to Stephen Vitale notifying him that residents living on Trask Street have complained that fly ash is eroding into the swamp and stream causing a damming effect and flooding in their yards. Additionally these neighbors complained of a "severe dust problem" in the summer months when the fly ash dumped on-site dries. DNR requested that Mr. Vitale immediately stabilize the piles of fly ash.

On August 26, 1974 the Beverly Board of Health notified Steven Vitale that the fly ash disposal area was still utilized in a manner of illegal disposal of refuse violating MGL Chapter 111, Section 122. Mr. Vitale was also notified that this filling was also a violation of the Hatch Act in addition to creating an insipient water pollution problem.

On February 24, 1975, Mass Department of Public Health (DPH) issued an Order to Michael and Steven Vitale and their associated construction companies. The violations cited in this Order were:

(1) The site is being used as a solid waste disposal area and was never assigned by the Beverly Board of Health under MGL Chapter 111, Section 150A as an approved site for disposal of refuse.

(2) Waste from the site is being released into Airport Stream and Wenham Lake.

(3) Conditions at the site constitute a nuisance and an interence with public health, comfort, and convenience.

Steven Vitale was ordered to:

(1) Prevent siltation and pollution of the stream.

(2) Cut back the slope to the wetland, grade, cap, and vegetate the site.

(3) Commence and complete work within given timeframes.

From the time of the 1975 DPH Order to 1980 (when the City of Beverly took control of the property), the Vitales have refuted all subsequent DPH and DEQE Orders, requested hearings, etc. resulting in litigation with DPH & DEQE, through the Office of the Attorney General (see Attachment 4).

The DEQE is currently negotiating a Consent Order with the City of Beverly and Ronald Vitale (Stephen Vitale's son). The outcome of the Order should be that the site properly becomes assessed and cleaned up.

ROUTES FOR CONTAMINANT TRANSPORT

Since little is known at this time, of the types of contamination of the site, the physical/chemical properties of these contaminants aren't known and therefore it is premature to discuss the fate of these unknown compounds.

It is fair to assume, however, that water soluble contaminants buried below the static water table may leach to the groundwater and travel with the groundwater flow towards the discharge point which may be Airport Stream or Wenham Lake. Contaminants entering Airport Stream will likely end up in Wenham Lake since the stream drains into the lake. Private wells also exist in the area and may be impacted by groundwater contamination.

POSSIBLE AFFECTED POPULATION AND RESOURCES

The water supply reservoir for the cities of Beverly and Salem (total population, approximately 80,000) is located 1/4 mile from the site. A potential exists that groundwater contamination originating on site or Airport Stream contamination may reach the reservoir. Private wells (for homes) also exist in the area.

Direct exposure to hazardous materials at the site is likely to be minimal, although surface stains with oil have been documented in the past. Currently, there are no overt areas of surface soil contamination, as the oily stained areas have been removed. The population possibly affected by any additional surface soil contamination would be limited due to the semi-isolated nature of the site.

RECOMMENDATIONS AND JUSTIFICATIONS

Because of the proximity of the Vitale Flyash and Solid Waste Dumpsite to Wenham Lake, a threat to drinking water quality exists. Since little assessment on potential contaminants at the site has been performed it is premature to judge the degree to which the water supply is threatened. It is recommended that a complete site assessment be performed. Using the data generated in the site assessment a Site Inspection under CERCLA should be performed. The writer recommends a high priority for the Site Inspection. The DEQE will provide EPA with a Site Inspection report within the obligations due for MSCA in 1988.

REFERENCES

DEQE, State Files, Northeast Regional Office

LJ/ae

CARR-DEE TEST BORING AND CONSTRUCTION CORPORATION

37 LINDEN STREET P.O. BOX 321 MEDFORD, MASSACHUSETTS 02155 Telephone 391-4500

To HALEY & ALDRICH, INC., CAMBRIDGE, MA. 02142 Date NOVEMBER 26, 1984 Job. No. 84511

Location GROUND WATER STUDY, BEVERLY, MA. (H&A FILE NO. 5614) Scale 1" = 4 ft.

BORING 1

GROUND SURFACE

	FILL SAND, GRAVEL	2 5 13 20	S#1, FROM 0.S. TO 2'0" RECOVERED 16"
2'0"			
		6 6 7 7	S#2, FROM 5'0" TO 7'0" RECOVERED 18"
	FILL		
		2 2 2 3	S#3, FROM 10'0" TO 12'0" RECOVERED 18"
	ASH		
		2 3 2 3	S#4, FROM 15'0" TO 17'0" RECOVERED 24"
	FILL		
		3 4 5 5	S#5, FROM 20'0" TO 22'0" RECOVERED 24"
		6 6 6 14	S#6, FROM 25'0" TO 27'0" RECOVERED 24"
27'0"			
	MEDIUM DENSE COARSE TO FINE SAND, GRAVEL	16 14 13 17	S#7, FROM 27'0" TO 29'0" RECOVERED 24"
29'0"			

(CONTINUED ON SHEET NO. 2)

CARR-DEE TEST BORI[redacted] AND CONSTRUCTI[redacted] CORPORATION
37 LINDEN STREET P.O. BO[redacted] MEDFORD, MASSACHUSETTS [redacted]55 Telephone 391-4500

To HALEY & ALDRICH, INC., CAMBRIDGE, MA. 02142 Date NOVEMBER 26, 1984 Job. No. 84511

Location GROUND WATER STUDY, BEVERLY, MA. (H&A FILE NO. 5614) Scale 1" = 4 ft.

BORING 1

29'0"

WATER LEVEL 18'0"
SIZE OF AUGERS 4¼", LENGTH 25'0"
NUMBER OF DRIVE SAMPLES (S), 7
DRILLER: R. MALLARDO, INSPECTOR: R. BURSAW
DATE STARTED: 11-21-84 & COMPLETED: 11-23-84

OBSERVATION WELL INSTALLED (2" PVC PIPE, 10'0" SLOTTED, 15'0"SOLID), 25'0"BELOW GROUND SURFACE, INCLUDING 3" PROTECTIVE CASING, WITH LOCKING DEVISE

All samples have been visually classified by DRILLER Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in right hand column indicate number of blows required to drive TWO-INCH SPLIT SAMPLER 6 inches using 140 lb. weight falling 30 inches ±. Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches ±.

CARR-DEE TEST BORING AND CONSTRUCTION CORPORATION

37 LINDEN STREET P.O. BOX 321 MEDFORD, MASSACHUSETTS 02155 Telephone 391-4500

To HALEY & ALDRICH, INC., CAMBRIDGE, MA. 02142 Date NOVEMBER 26, 1984 Job. No. 84511

Location GROUND WATER STUDY, BEVERLY, MA. (H&A FILE NO. 5614) Scale 1" = 4 ft.

BORING 2

GROUND SURFACE

	1 5 10 12	S#1, FROM G.S. TO 2'0" RECOVERED 16"
	12 15 19 14	S#2, FROM 2'0" TO 4'0" RECOVERED 18"
	2 2 3 2	S#3, FROM 5'0" TO 7'0" RECOVERED 23"
FILL	3 4 3 3	S#4, FROM 7'0" TO 9'0" RECOVERED 22"
	2 2 1 1 2 1	S#5, FROM 9'0" TO 12'0" RECOVERED 24"
	2 1 2 2	S#6, FROM 12'0" TO 14'0" RECOVERED 24"
ASH	1/12" 1 1 2 2	S#7, FROM 14'0" TO 17'0" RECOVERED 24"
FILL	2 1 1 2	S#8, FROM 17'0" TO 19'0" RECOVERED 24"
	1 1/18" 1 2	S#9, FROM 19'0" TO 22' RECOVERED 24"
	1/12" 1/12" 1 2	S#10, FROM 22'0" TO 25'0" RECOVERED 24"
	2 2 3 3	S#11, FROM 25'0" TO 27'0" RECOVERED 24"
	2 1 2 1	S#12, FROM 27'0" TO 29'0" RECOVERED 24"
	2 2 6	S#13, FROM 29'0" TO 30'6" RECOVERED 18"
30'6"	12	S#13A, FROM 30'6" TO 31'0", REC. 3"
VERY DENSE FINE SAND, TRACE COARSE SAND, TRACE FINE GRAVEL	12 26 29 17	S#14, FROM 31'0" TO 33'0" RECOVERED 15"
33'0"		

(CONTINUED ON SHEET NO. 2)

CARR-DEE TEST BORING AND CONSTRUCTION CORPORATION
37 LINDEN STREET P.O. BOX 321 MEDFORD, MASSACHUSETTS 02155 Telephone 391-4500

To HALEY & ALDRICH, INC., CAMBRIDGE, MA. 02142 Date NOVEMBER 26, 1984 Job. No. 84511

Location GROUND WATER STUDY, BEVERLY, MA. (H&A FILE NO. 5614) Scale 1" = 4 ft.

BORING 2

33'0"

WATER LEVEL 21'0"
SIZE OF AUGERS 4¼", LENGTH 30'0"
NUMBER OF DRIVE SAMPLES (S), 15'0"
DRILLER: R. MALLARDO, INSPECTOR: R. BURSAW
DATE STARTED & COMPLETED: 11-21-84

OBSERVATION WELL INSTALLED (2" PVC PIPE, 10'0" SLOTTED, 25'0" SOLID), 30'0" BELOW GROUND SURFACE, INCLUDING 3" PROTECTIVE CASING, WITH LOCKING DEVISE.

All samples have been visually classified by DRILLER Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in right hand column indicate number of blows required to drive TWO-INCH SPLIT SAMPLER 6 inches using 140 lb. weight falling 30 inches ±. Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches ±.

CARR-DEE TEST BO[illegible] AND CONSTRUC[illegible] CORPORATION
37 LINDEN STREET P.O. BOX 321 MEDFORD, MASSACHUSETTS 02155 Telephone 391-4500

To HALEY & ALDRICH, INC., CAMBRIDGE, MA. 02142 Date NOVEMBER 26, 1984 Job. No. 84511

Location GROUND WATER STUDY, BEVERLY, MA. (H&A FILE NO. 5614) Scale 1" = 4 ft.

BORING 3

GROUND SURFACE

	FILL	PUSH	S#1, FROM 0.S. TO 2'0" RECOVERED 23"
		PUSH	S#2, FROM 5'0" TO 7'0" RECOVERED 24"
	ASH FILL	PUSH	S#3, FROM 10'0" TO 12'0" RECOVERED 24"
14'0"	DENSE FINE SAND & GRAVEL, TRACE COARSE SAND, SILT	15 19 17 21	S#4, FROM 14'0" TO 16'0"
16'0"			

WATER LEVEL, 10'0"
SIZE OF AUGERS 4¼", LENGTH 15'0"
NUMBER OF DRIVE SAMPLES (S), 4
DRILLER: R. MALLARDO, INSPECTOR: R. BURSAW
DATE STARTED & COMPLETED: 11-23-84

OBSERVATION WELL INSTALLED (2" PVC PIPE, 5'0" SLOTTED, 10'0" SOLID), 15'0" BELOW GROUND SURFACE, INCLUDING 3" PROTECTIVE CASING, WITH LOCKING DEVISE.

All samples have been visually classified by DRILLER Unless otherwise specified, water levels noted were observed at completion of borings, and do not necessarily represent permanent ground water levels. Figures in right hand column indicate number of blows required to drive TWO-INCH SPLIT SAMPLER 6 inches using 140 lb. weight falling 30 inches ±. Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb. weight falling 24 inches ±.

CARR-DEE TEST [redacted]NG AND CONSTRU[redacted]ON CORPORATION
37 LINDEN STREET P.O. BOX 321 MEDFORD, MASSACHUSETTS 02155 Telephone 391-4500

To HALEY & ALDRICH, INC., CAMBRIDGE, MA. 02142 Date NOVEMBER 26, 1984 Job. No. 84511

Location GROUND WATER STUDY, BEVERLY, MA. (H&A FILE NO. 5614) Scale 1" = 4 ft.

BORING 4

GROUND SURFACE

		PUSH	
			S#1, FROM 0.S. TO 2'0" RECOVERED 18"
		15 15 15 13	S#2, FROM 2'0" TO 4'0" RECOVERED 20"
	FILL	8 6 5 6	S#3, FROM 4'0" TO 6'0" RECOVERED 18"
	ASH	3 3 3 2	S#4, FROM 6'0" TO 8'0" RECOVERED 16"
	FILL	1 2 1 1 1 2	S#5, FROM 10'0" TO 13'0" RECOVERED 24"
14'0"	DENSE FINE SAND, LAYERS OF GRAVEL	15 20 25 17	S#6, FROM 14'0" TO 16'0" RECOVERED 18"
16'0"			

WATER LEVEL 10'0"
NUMBER OF DRIVE SAMPLES (6)
DRILLER: R. MALLARDO, INSPECTOR: R. BURSAW
DATE STARTED & COMPLETED: 11-23-84

All samples have been visually classified by DRILLER Unless otherwise specified, water levels noted were observed at completion of borings and do not necessarily represent permanent ground water levels. Figures in right hand column indicate number of blows required to drive TWO-INCH SPLIT SAMPLER 6 inches using 140 lb. weight falling 30 inches ±. Figures in column to left (if noted) indicate number of blows to drive casing one foot, using 300 lb weight falling 24 inches ±.

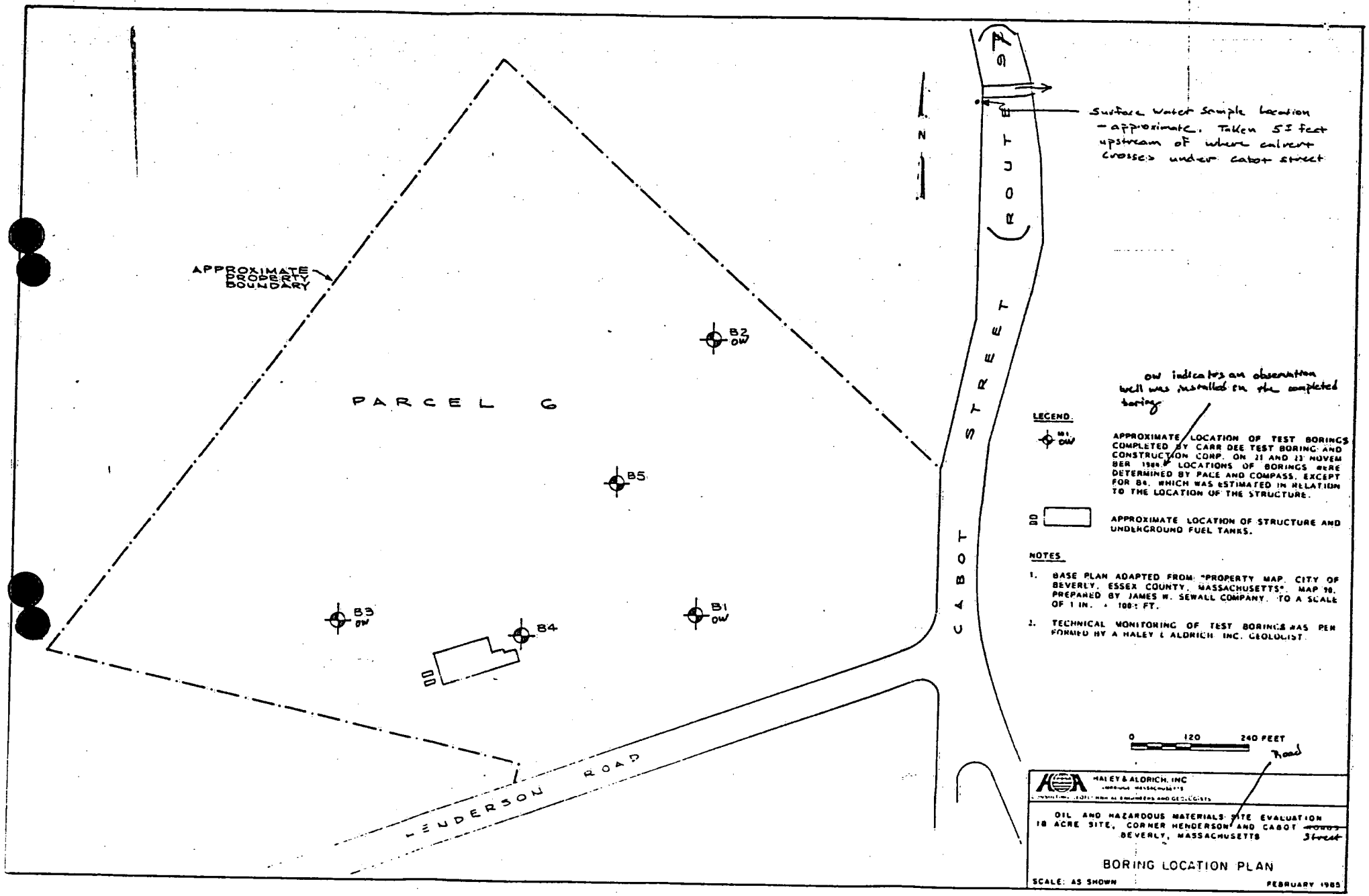

APPROXIMATE PROPERTY BOUNDARY
PARCEL G
B2 OW
B5
B3 OW
B4
B1 OW
DD
HENDERSON ROAD
CABOT STREET
N
Surface Water Sample location - approximate. Taken 50 feet upstream of where culvert crosses under Cabot Street
OW indicates an observation well was installed in the completed boring
LEGEND.
APPROXIMATE LOCATION OF TEST BORINGS COMPLETED BY CARR DEE TEST BORING AND CONSTRUCTION CORP. ON 21 AND 23 NOVEMBER 1988. LOCATIONS OF BORINGS WERE DETERMINED BY PACE AND COMPASS, EXCEPT FOR B4, WHICH WAS ESTIMATED IN RELATION TO THE LOCATION OF THE STRUCTURE.
APPROXIMATE LOCATION OF STRUCTURE AND UNDERGROUND FUEL TANKS.
NOTES
1. BASE PLAN ADAPTED FROM "PROPERTY MAP, CITY OF BEVERLY, ESSEX COUNTY, MASSACHUSETTS", MAP 98, PREPARED BY JAMES W. SEWALL COMPANY, TO A SCALE OF 1 IN. = 100± FT.
2. TECHNICAL MONITORING OF TEST BORINGS WAS PERFORMED BY A HALEY & ALDRICH, INC. GEOLOGIST.
0 120 240 FEET
Road
HALEY & ALDRICH, INC
OIL AND HAZARDOUS MATERIALS SITE EVALUATION
18 ACRE SITE, CORNER HENDERSON AND CABOT ~~ROADS~~ Street
BEVERLY, MASSACHUSETTS
BORING LOCATION PLAN
SCALE: AS SHOWN
FEBRUARY 1989

FIGURE 2

CAMBRIDGE ANALYTICAL ASSOCIATES, INC.

Table 2. Concentrations of Volatile Organic Compounds (Method 601)

Client: Haley & Aldrich, Inc.
CAA Project No.: 84-1396

Date Samples Received: November 26, 1984
Date Analysis Completed: December 3, 1984

Compound	Sample ID: / CAA ID:	Concentration - (ppb) [1] Surface Water 8407704	Comp. B1, B2, B3 Soil 8407705
(1)	chloromethane		
(2)	vinyl chloride		
(3)	chloroethane		
(4)	methylene chloride		
(5)	1,1-dichloroethylene		100
(6)	1,1-dichloroethane		
(7)	trans-1,2-dichloroethylene		
(8)	chloroform		
(9)	1,2-dichloroethane		
(10)	1,1,1-trichloroethane		20
(11)	carbon tetrachloride		300
(12)	bromodichloromethane		
(13)	1,2-dichloropropane		
(14)	trans-1,3-dichloropropene		
(15)	trichloroethylene		
(16)	dibromochloromethane		
(17)	1,1,2-trichloroethane		
(18)	cis-1,3-dichloropropene		
(19)	2-chloroethylvinyl ether		
(20)	bromoform		
(21)	1,1,2,2-tetrachloroethane		
(22)	tetrachloroethylene		
(23)	chlorobenzene		
	Detection Limit	1. ug/l	5 ug/kg

[1] Concentrations less than the detection limit are left blank.

CAMBRIDGE ANALYTICAL ASSOCIATES, INC.

Table 4. Concentration of Acid/Base/Neutral Priority Pollutant Extractables (Method 8270)

Client: Haley & Aldrich, Inc.
CAA Project No.: 84-1396

Date Samples Received: November 26, 1984
Date Analysis Completed: November 29, 1984

Compound	Sample ID: / CAA ID:	Concentration - ug/l (ppb) Surface Water 8407704	Concentration ug/g dry weight (ppm) Composite Soil B1, B2, B3 8407705
ACID COMPOUNDS			
(1) phenol			
(2) 2-chlorophenol			
(3) 2-nitrophenol			
(4) 2,4-dimethylphenol			
(5) 2,4-dichlorophenol			
(6) p-chloro-m-cresol			
(7) 2,4,6-trichlorophenol			
(8) 2,4-dinitrophenol			
(9) 4-nitrophenol			
(10) 4,6-dinitro-2-methylphenol			
(11) pentachlorophenol			
Detection Limit		2	0.03
BASE/NEUTRAL COMPOUNDS			
(1) N-nitrosodimethylamine			
(2) bis(2-chloroethyl)ether			
(3) 1,3-dichlorobenzene			
(4) 1,4-dichlorobenzene			
(5) 1,2-dichlorobenzene			
(6) bis (2-chloroisopropyl) ether			
(7) N-nitrosodi-n-propylamine			
(8) hexachloroethane			
(9) nitrobenzene			
(10) isophorone			
(11) bis(2-chloroethoxy)methane			
(12) 1,2,4-trichlorobenzene			
(13) naphthalene			TR(0.03)
(14) hexachlorobutadiene			
(15) hexachlorocyclopentadiene			
(16) 2-chloronaphthalene			
(17) dimethyl phthalate			

CAMBRIDGE ANALYTICAL ASSOCIATES, INC.

Table 4 (cont'd.). Concentration of Acid/Base/Neutral Priority Pollutant Extractables (Method 8270)

Client: Haley & Aldrich, Inc.
CAA Project No.: 84-1396

Compound	Sample ID: / CAA ID:	Concentration - ug/l (ppb) Surface Water 8407704	Concentration ug/g dry weight (ppm) Composite Soil B1, B2, B3 8407705
BASE NEUTRAL COMPOUNDS (cont'd.)			
(18) acenaphthylene			
(19) acenaphthene			
(20) 2,4-dinitrotoluene			
(21) 2,6-dinitrotoluene			
(22) diethyl phthalate			
(23) 4-chlorophenyl phenyl ether			
(24) fluorene			
(25) N-nitrosodiphenylamine			
(26) 1,2-diphenylhydrazine[2]			
(27) 4-bromophenyl phenyl ether			
(28) hexachlorobenzene			
(29) phenanthrene			
(30) anthracene			
(31) di-n-butyl phthalate			
(32) fluoranthene			
(33) benzidine			
(34) pyrene			
(35) butyl benzyl phthalate			
(36) 3,3'-dichlorobenzidine			
(37) benzo(a)anthracene			
(38) bis(2-ethylhexyl)phthalate			
(39) chrysene			
(40) di-n-octyl phthalate			
(41) benzo(b)fluoranthene			
(42) benzo(k)fluoranthene			
(43) benzo(a)pyrene			
(44) indeno(1,2,3-cd)pyrene			
(45) dibenzo(a,h)anthracene			
(46) benzo(ghi)perylene			
2 - methyl naphthalene			TR(0.12)
Detection Limit		2	0.03

[1] Concentrations less than the detection limit are left blank. Concentrations between 1 and and 10 times the limit of detection are listed as trace levels (TR).

[2] Analyzed as azobenzene.

[3] Analyzed as diphenylamine.

Table 6. Results of Analyses for Metals

Client: Haley & Aldrich
Project Number: 84-1396

Constituent	Client ID: / CAA ID:	Composite Soil, B1, B2, B3 / 8407705
Sb (ug/g, dry weight)		1.5
As (ug/g, dry weight)		71
Be (ug/g, dry weight)		5.1
Cd (ug/g, dry weight)		<1.0
Cr (ug/g, dry weight)		51
Cu (ug/g, dry weight)		58
Pb (ug/g, dry weight)		45
Hg (ug/g, dry weight)		0.32
Ni (ug/g, dry weight)		62
Se (ug/g, dry weight)		33
Ag (ug/g, dry weight)		3.0
Tl (ug/g, dry weight)		1.1
Zn (ug/g, dry weight)		58
% Solids		69.5

Table 5. Results of Analyses for Metals

Client: Haley & Aldrich
Project Number: 84-1396

Constituent	Client ID: Surface Water CAA ID: 8407704
Sb (mg/l)	<0.005
As (mg/l)	<0.005
Be (mg/l)	<0.010
Cd (mg/l)	<0.001
Cr (mg/l)	0.044
Cu (mg/l)	0.033
Pb (mg/l)	0.005
Hg (mg/l)	<0.0002
Ni (mg/l)	0.075
Se (mg/l)	<0.005
Ag (mg/l)	0.032
Tl (mg/l)	<0.005
Zn (mg/l)	0.040

Attachment 3

COMMONWEALTH OF MASSACHUSETTS

ESSEX, SS.

SUPERIOR COURT
CIVIL ACTION
NO. 8344

STEVEN VITALE et al.,
PLAINTIFFS

v.

DAVID STANDLEY,
DEFENDANT

AFFIDAVIT

I, STEPHEN G. LIPMAN, being duly sworn, hereby make my affidavit as follows:

I am employed by the Commonwealth of Massachusetts as a Senior Sanitary Engineer. I have been working for the Department of Environmental Quality Engineering (formerly the Department of Public Health) as a sanitary engineer for approximately four and one-half years. I coordinated the solid waste management program for the Northeast District and was involved in the liquid waste disposal and public water supply programs. I am currently with the Division of Water Pollution Control.

I received my Bachelor of Science degree in civil engineering (environmental engineering major) from Northeastern University in 1971, and my Master of Science degree in the same field from Tufts University in 1974. I am a registered sanitarian and certified health officer.

On several occasions I have visited the parcel of land located at the intersection of Cabot Street (Route 97) and L.P. Henderson Road (formerly Airport Road). I have observed that quantities of fly ash have been deposited on this parcel. I also observed that fly ash from this parcel was being washed into an unnamed brook (sometimes called Airport Brook) which flows into Wenham Lake. Wenham Lake serves as a public water supply.

I have taken water samples above and below the parcel to determine if and to what extent this fly ash is contaminating the water which runs through it. Copies of the results of my sampling are attached to this affidavit. These analyses revealed that the fly ash on the parcel is contaminating the brook, particularly with solids, sodium and chlorides. The continuous addition of these substances to Wenham Lake is detrimental to this source of public water.

Steven G. Lipman
STEPHEN G. LIPMAN

Commonwealth of Massachusetts

Personally appeared before me STEPHEN G. LIPMAN, and made oath that he read the above affidavit and knows the contents thereof and that the statements contained therein are true to the best of his knowledge and belief.

Before me,

John J. O'Brien
NOTARY PUBLIC

My commission expires: 15 May 1981

DEPARTMENT OF PUBLIC HEALTH
LAWRENCE EXPERIMENT STATION
WASTE WATER ANALYSIS (mg. per liter)

BEVERLY

Collector: Lipman

Source A Airport Brook, Upstream from Vitale Fly Ash dump
Source B " " Downstream " " " " " @ Culvert under Rt. 97
Source C " " @ Confluence of Airport Brook & Wen am Lake
Source D Left side of lake approx. 150 yds. from confluence of Airport Brook & Wenham Lake
Source E Right " " " " 200 yds. " " " " " " " "
Source F

	A	B	C	D	E	F
Sample No.	R61123	R61124	R61125	R61126	R61127	
Date of Collection	1/24/75	1/24	1/24	1/24	1/24	
Time of Collection	10:25	10:37	10:53	11:32	11:15	
Date Received	1/24/75	1/24	1/24	1/24	1/24	
COD						
BOD						
pH	6.9	7.3	7.2	7.1	6.9	
Alkalinity, Total	27	42	45	21	22	
Suspended Solids	0.5	7.5	272	2.0	174	
Total Solids	90	714	1098	170	412	
Total Kjeldahl - N						
Ammonia - N	0.00	0.05	0.05	0.09	0.00	
Nitrate - N	0.6	0.6	0.7	0.3	0.7	
Total P						
Fly Ash, ASU/cc		70	15,500	20	0	
Total Coliform						
Fecal Coliform						
Sodium	10	200	200	126	25	
Chlorides	16	310	310	46	60	
Turbidity	6	2	10	1	7	
Conductivity	150	1220	1300	240	300	
Iron	0.08	0.25	0.75	0.10	0.35	

DEPARTMENT OF PUBLIC HEALTH
LAWRENCE EXPERIMENT STATION
WASTE WATER ANALYSIS (mg. per liter)

BEVERLY

Collector: Lipman

Source A Airport Brook, Upstream from Vitale Dump
Source B Downstream from Vitale Dump, At Culvert on Rt. 97
Source C
Source D
Source E
Source F

	A	B	C	D	E	F
Sample No.	R61012	R62013				
Date of Collection	12/3/74	12/3				
Time of Collection	9:30	9:35				
Date Received	12/3/74	12/3				
COD						
BOD						
pH	6.4	7.0				
Alkalinity, Total	13	19				
Suspended Solids	3.5	130				
Total Solids	46	390				
Sodium	8.0	40				
Chloride	12	110				
Total Kjeldahl - N						
Ammonia - N						
Microscopic		*				
Nitrate - N						
Total P						
Total Coliform						
Fecal Coliform						
TURBIDITY	12	23				
CONDUCTIVITY	122	520				
IRON	0.15	0.65				

* Microscopic examination showed the presence of fly ash in the sample.

NOTES RELATIVE TO:

Subject: Beverly - Public Water Supply & Solid Wastes - Fly Ash Disposal on Property Owned by Michael Vitale

By: Steven G. Lipman

Date: 5 December 1974

On 3 December 1974 this writer, accompanied by Kevin Riley, Salem/Beverly Water Treatment Plant, conducted an examination of conditions in a brook (known as Airport Brook) which flows into Wenham Lake. Said brook flows past the Beverly Municipal Airport, through lands owned by Michael Vitale, under Route 97 and approximately 2,000 feet to the northeast section of Wenham Lake, a source of drinking water for the cities of Salem and Beverly.

Mr. Riley and this writer walked the length of Airport Brook from Route 97 to its confluence with Wenham Lake. It was observed that the brook flows in a well-defined channel, the banks of which are laden with fly ash. At its confluence with Wenham Lake a delta of fly ash has been formed (a sample of the material making up the delta was taken to Lawrence Experiment Station and positively identified through microscopic examination as fly ash). Two brook samples were also taken; the first just upstream from the Vitale Fly Ash Dump and the second at the easterly side of Route 97.

DEPARTMENT OF PUBLIC HEALTH
LAWRENCE EXPERIMENT STATION
WASTE WATER ANALYSIS (mg. per liter)

BIWEEKLY

Collector: Lipman

Source A Sediment at confluence of Airport Brook & Mahan Lake
Source B
Source C
Source D
Source E
Source F

	A	B	C	D	E	F
Sample No.	B5101A					
Date of Collection	12/3/74					
Time of Collection	10:15 AM					
Date Received	12/3/74					
COD						
BOD						
pH						
Alkalinity, Total						
Suspended Solids						
Total Solids						
Total Kjeldahl - N						
Ammonia - N						
Nitrate - N						
Total P						
Total Coliform						
Fecal Coliform						
Temperature	*					

* Microscopic examination of the sediment sample showed the presence of fly ash

DEPARTMENT OF PUBLIC HEALTH
LAWRENCE EXPERIMENT STATION
WASTE WATER ANALYSIS (mg. per liter)

BEVERLY

Collector: Lipman

Source A **Sediment sample of delta material on bank of brook at confluence with Wenham Lake**
Source B **Sediment sample from Airport Brook, confluence with Wenham Lake**
Source C
Source D
Source E
Source F

	A	B	C	D	E	F
Sample No.	R61128	R61129				
Date of Collection	1/24/75	1/24/75				
Time of Collection	10:25 AM	10:30 AM				
Date Received	1/24/75	1/24/75				
COD						
BOD						
pH						
Alkalinity, Total						
Suspended Solids						
Total Solids						
Total Kjeldahl - N						
Ammonia - N						
Nitrate - N						
Total P						
Total Coliform						
Fecal Coliform						
Fly Ash	Present	Present				

'E COMMONWEALTH OF MASSACHUSETT
DEPARTMEN OF ENVIRONMENTAL QUALITY ENGINEERING
LAWRENCE EXPERIMENT STATION
SPECIAL ANALYSIS

EVIDENCE

SOURCE A AIRPORT STREAM PT A #1, FILTERED
SOURCE B AIRPORT STREAM PT B #5, FILTERED
SOURCE C AIRPORT STREAM PT C #9, FILTERED
SOURCE D
SOURCE E
SOURCE F

CITY/TOWN BEVERLY, WOBURN NE
COLLECTOR JOHNSON

	A	B	C	D	E	F
SAMPLE NUMBER	R15579	R15580	R15581			
DATE OF COLLECTION	04/08/86	→	→			
DATE OF RECEIPT	04/08/86	→	→			
DATE ANALYZED						
IRON	0.17	0.44	0.05			
MANGANESE	0.08	0.47	<0.02			
MAGNESIUM	3.3	5.2	8.4			
CALCIUM	9.1	13	34			
CADMIUM	<0.02	<0.02	<0.02			
BARIUM	<0.05	<0.05	<0.05			
LEAD	<0.04	<0.04	<0.04			
VANADIUM	<0.10	<0.10	<0.10			
CHROMIUM	<0.02	<0.02	<0.02			
COPPER	<0.02	<0.02	<0.02			
ARSENIC	0.005	0.002	<0.002			
NICKEL	<0.05	<0.05	<0.05			

REMARKS
FILTERED AND FIXED IN LAB

LAWRENCE EXPERIMENT STATION
WASTE WATER ANALYSIS
(mg. per liter)

EVIDENCE
BEVERLY NE

Collector: JOHNSON

SOURCE A AIRPORT STREAM, PT A, #2
SOURCE B AIRPORT STREAM, PT B, #6
SOURCE C AIRPORT STREAM, PT C, #10
SOURCE D
SOURCE E
SOURCE F

	A	B	C	D	E	F
SAMPLE NO.	R15576	R15577	R15578			
DATE OF COLLECTION	04/08/86 ---------->					
TIME OF COLLECTION	11:30	10:30	11:00			
DATE RECEIVED	04/08/86 ---------->					
COD						
BOD						
pH	7.2	7.2	7.4			
ALKALINITY, TOTAL	27	43	66			
SUSPENDED SOLIDS	1.2	1.2	0.0			
TOTAL SOLIDS	180	170	280			
HARDNESS	35	55	123			
CONDUCTIVITY	*	177	337			
TOTAL KJELDAHL - N						
AMMONIA - N						
FLYASH	NP	NP	NP			
NITRATE - N						
TOTAL P						
TOTAL COLIFORM						
FECAL COLIFORM						
CHLORIDE	12	15	29			
SODIUM	8.7	11	36			

* INSUFFICIENT SAMPLES FOR CONDUCTIVITY ANALYSIS
NP = NONE PRESENT, MICROSCOPIC EXAMINATION FAILED TO SHOW THE PRESENCE OF FLYASH

Attachment 4

MEMORANDUM

BY: Stephen Johnson, Environmental Analyst

THRU: Richard J. Chalpin, Acting Regional Environmental Engineer

DATE: March 7, 1986

SUBJECT: BEVERLY - Vitale Flyash and Solid Waste Dumpsite

On March 6, 1986, the writer and Ms. Rodene DeRice of the Northeast Region's Division of Solid and Hazardous Waste, visited the above-referenced site on the corner of Rte 97 (Cabot St.) and L.P. Henderson Road in Beverly, Massachusetts. The purpose of the visit was to observe and document site conditions which have been documented in the past, to determine if action should be taken by the Department at this time.

Briefly, past conditions involve, principally, the disposal of large quantities of flyash from the New England Power Company in Salem, MA. The Vitale brothers (Michael & Stephen), owners of the property, allegedly authorized this disposal without obtaining any site assignments from the local officials, or permits from state agencies. The disposal, thus, was considered illegal. Orders from state agencies to clean up the site were either ignored or contested, and eventually the problem went to the Attorney General's Office. Throughout this ordeal, no cleanup or erosion control measures were done. The result is that large quantities of flyash have eroded into the Airport Stream and migrated into Wenham Lake, the drinking water supply for Beverly and Salem.

At 1:00P.M. on March 6, 1986, the site was toured with the perspective of viewing flyash erosion and documenting what other solid wastes were present. The car was parked at the corner of Rte 97 and L.P. Henderson Road, and the two inspectors walked directly northwest towards the Airport Stream. Immediately large mounds of hardened soil/hardened flyash/bituminous concrete-type material were found. Looking across the stream the eroding flyash banks were clearly visible.

From there the path followed was north along Rte 97, to a point where the subject property was easily accessible (several hundred yards up Rte 97 towards Wenham). This area, very close to the town line, had not been filled in the past. After walking several hundred yards across this area and then south into some wetlands, the steep banks marking the edges of the filled area were found. Upon climbing up the slopes, areas of solid waste disposal were seen. This trash included asphalt roofing shingles, asbestos siding shingles, tires, mattresses, and appliances. A 3" steel casing for a monitoring well was then discovered near the eastern edge of the fill. The well was capped and locked, and was rusty enough to have been there a long time.

S. RUSSELL SYLVA
Commissioner

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering
Metropolitan Boston - Northeast Region
5 Commonwealth Avenue
Woburn, Massachusetts 01801

April 5, 1988

TO: Ronald Vitale
17 Cobbler's Lane
Beverly, MA 01915

RE: **Vitale Flyash & Solid Waste Dumpsite**
L.P. Henderson Road
Beverly, MA

ADMINISTRATIVE ORDER

The Department of Environmental Quality Engineering (the Department) has determined that you are in violation of Massachusetts General Law (M.G.L.) Chapter 111, Section 150A; M.G.L. Chapter 131, Section 40; M.G.L. Chapter 111, Section 160 & 167; M.G.L. Chapter 21; and M.G.L. Chapter 21E. These laws govern Solid Wastes, Wetlands, Water Supply, Water Pollution, and Oil/Hazardous Materials, respectively, and therefore, this Order is issued.

I STATEMENT OF FACTS

The facts which support this Administrative Order are as follows:

1) Through an arrangement, formal or otherwise, with the City of Beverly, you maintain an interest in the property located at L.P. Henderson Rd. and Cabot Street in Beverly, and identified at the city assessor's office as Lot 6 on page 90. Although the property is owned by the City of Beverly, it was once owned by the Vitale family, and was awarded to you by a probate court.

2) The Airport Stream, which crosses the site, is a tributary to a surface water supply. The site borders a vegetated wetlands, and is located in the watershed of Wenham Lake, less than 2,000 feet from the lake.

3) This site is not assigned as a solid waste disposal facility by state or local authorities.

4) Large quantities of solid waste material (automobile bodies, scrap metal, household appliances, asphalt shingles, asbestos shingles, steel drums, municipal refuse, etc.) have been disposed on-site. These conditions were most recently observed on March 6, 1986.

5) The solid wastes, and large quantities of flyash, have been disposed in wetlands areas bordering the Airport Stream.

6) The past flyash disposal has resulted in unstable banks along wetlands areas. As a result, flyash is eroding further into wetlands areas, and is being transported by the Airport Stream to other wetlands areas and into Wenham Lake, the public drinking water supply for Beverly and Salem.

7) Water quality analyses from the Airport Stream, taken from a location downstream of the dumpsite, show increased levels of total coliform, fecal coliform, suspended solids, total solids, conductivity, iron, chloride, sodium, ammonia, pH and alkalinity when compared to an upstream sample.

8) A large oil-stained area of soil is present near the fuel storage area adjacent to the on-site building. This constitutes a "release" of oil/hazardous materials pursuant to M.G.L. Chapter 21E.

9) You have never notified the Department of the release of oil/hazardous materials.

II VIOLATIONS OF LAW

Based on the facts stated above, the Department has found you in violation of the following provisions:

1) Facts 3 and 4 above support the determination that a violation of M.G.L. Chapter 111, Section 150A has occurred. M.G.L. Chapter 111, Section 150A states:

> No place in any city or town shall be established or maintained or operated by any person, including any political subdivision or agency of the Commonwealth, as a site for a facility, unless such place has either been assigned by the Board of Health of such city or town as a site for a facility after a public hearing, subject to the provisions of any ordinance or by-law adopted therein under Chapter forty A or corresponding provisions of earlier laws, or, in the case of an agency of the Commonwealth, has been assigned by the Department of Environmental Quality Engineering, in this section called the department, after a public hearing, and unless public notice of such assignment has been given by the Board of Health.

2) Facts 3 and 4 above support the determination that a violation of M.G.L. Chapter 111, Section 150A has occurred. M.G.L. Chapter 111, Section 150A states:

A facility shall not be constructed or operated unless the proposed use and the plans or design therefor have been approved by the Department.

3) Facts 3, 5 and 6 support the determination that a violation of M.G.L. Chapter 131, Section 40 has occurred. M.G.L. Chapter 131, Section 40 states, in part, that no filling of a wetland may occur without filing written notice of intention to fill, including such plans as may be necessary to describe such activity and its effect on the environment and without receiving and complying with an order of conditions and provided all appeal periods have elapsed. Not only have solid wastes and flyash been filled in on-site wetlands in the past, but the unstable banks of the flyash deposits have created a condition of continual erosion into the Airport Stream and from there to the wetlands of the stream and Wenham Lake.

4) Facts 4, 6 and 7 support the determination that a violation of 310 CMR 22.20(3) has occurred. 310 CMR 22.20(3) (Adopted under the authority granted in Chapter 111, Section 160) states: No human excrement or compost containing human excrement, or municipal, commercial or industrial refuse or waste product or polluting liquid or other substance which in the opinion of the Department is of a nature poisonous or injurious either to human beings or animals, or other putrescible organic matter whatsoever, shall be discharged directly into or at any place from which such liquid or substance may flow or be washed or carried into said source of water supply or tributary thereto.

5) Facts 4, 6 and 7 support the determination that a violation of M.G.L. Chapter 111, Section 167 has occurred. Chapter 111, Section 167 states: No sewage, drainage or polluting matter, of such kind and amount as either by itself or in connection with other matter will corrupt or impair the quality of the water of any pond or stream used as a source of ice or water supply by a town, public institution or water company for domestic use, or render it injurious to health, and no human excrement shall be discharged into any such stream or pond, or upon their banks if any filter basin so used is there situated, or into any feeders of such pond or stream within twenty miles above the point where such supply is taken.

6) Facts 6 and 7 above support the determination that a violation of M.G.L. Chapter 21, Section 43 has occurred. Chapter 21, Section 43(2), states in part: No person shall discharge pollutants into waters of the Commonwealth nor construct, install, modify, operate or maintain an outlet for such discharge or any treatment works, without a currently valid permit issued by the director. No person shall engage in any other activity that may reasonably be expected to result directly or indirectly in discharge of pollutants into waters of the commonwealth, nor construct, effect, maintain, modify or use any sewer extension or connection, without a currently valid permit issued by the director, unless exempted by regulation of the director.

7) Facts 8 and 9 support the determination that a violation of M.G.L. Chapter 21E has occurred. M.G.L. Chapter 21E, Section 7, the "Massachusetts Oil & Hazardous Material Release Prevention and Response Act" requires any person responsible for a release of oil/hazardous material, to notify the Department of such release. You, as former owner/operator of the subject property, are a responsible party according to M.G.L. Chapter 21E, Section 5a.

III Conclusion and Order

On the basis of the facts and law stated above, and pursuant to the authority granted to the Department by M.G.L. Chapter 111, Section 150A, M.G.L. Chapter 131, Section 40, M.G.L. Chapter 111, Section 160 & 167, M.G.L. Chapter 21 and M.G.L. Chapter 21E, you are hereby Ordered to take the following actions to remedy the violations noted above:

1) Submit, by May 1, 1986, a written proposal to the department which details plans to remove all solid wastes and other construction/demolition debris from the subject property. Upon receiving written approval of this plan, you shall complete removal of such waste/debris within two months.

2) By May 1, 1986, file with the Department a Scope of Work which, at a minimum, must address the following:

   a) dredging of all flyash which has eroded from the site into adjacent wetlands, and disposal of dredge material in a manner to prevent future siltation/contamination of wetlands.

   b) stabilization of flyash deposits to prevent continued erosion into wetlands.

   c) restoration of damaged wetland vegetation.

This work shall be completed under the supervision of a registered professional engineer who will prepare and submit appropriate plans and reports showing existing site conditions and proposed alterations as is required in a wetlands project. If it proposed that any wetlands alteration is to remain permanent, a Notice of Intent for said alterations shall be filed with the Beverly Conservation Commission and the Department.

3) Prepare and submit to the Department's Division of Solid and Hazardous Waste by May 1, 1986, a scope of work for a site assessment. This submittal shall address, at a minimum, a program to establish and maintain permanent monitoring stations to establish the quality of surface water and groundwater at the site. This program shall be implemented within one month of the Department's approval of the scope-of-work plan.

You are advised that the cited laws and regulations each provide for separate penalties or imprisonment, or both, for each day of each violation thereof covered by this Order which is not corrected in accordance with the terms of this Order and the Department may seek such remedies to the fullest extent.

You are hereby notified that you may request an adjudicatory hearing on this Order. The request must be made in writing within 30 days of receipt of this Order. The request must respond to each of the points of fact and law made in this Order and must clearly and concisely state the facts and issues of law which you intend to raise in the adjudicatory proceeding. The request must be addressed to: Docket Clerk, Office of General Counsel, Department of Environmental Quality Engineering, One Winter Street, 9th Floor, Boston, MA 02108.

Questions regarding the contents of this Order should be directed to: Mr. Stephen Johnson, 935-2160.

Richard J. Chalpin

DATE: April 4, 1986

D.E.Q.E.
BY: Richard J. Chalpin
Acting Regional
Environmental Engineer

(617) 935-2160

Upon walking from there in a westerly direction, and trying to canvass as much of the area as possible, large quantities of solid waste materials were seen dumped and strewn everywhere. Wood timbers, rusting metal, piles of tires and asphalt shingles, car bodies, municipal refuse, and at least 10 empty steel drums were noticed. Along the north boundary of the fill, partially buried material may indicate that much of the rest of the property was filled in with similar solid wastes.

As the building on-site was approached, more empty steel drums were observed at the rear of the building. Oil-stained soil was found in the same place noted in a letter from this office, dated November 5, 1984, when Mr. Vitale was instructed to clean up this soil. The location of an underground storage tank was identified.

Having seen and photographed the above, the writer believes that the conditions meriting involvement of the Attorney General's Office in the 1970's still exist. Obvious solid waste and wetlands violations threaten the ground water quality which migrates from this site towards Wenham Lake. In addition, the underground storage tanks represents a serious threat to water quality should it be leaking.

Based upon this, the writer will try to urge the Beverly Fire Department to have the tank leak-tested or removed, according to the city of Beverly bylaws. Further, the writer strongly recommends that the current owner, Ronald Vitale, be issued an Order to remove illegal solid wastes from the site, control erosion of flyash from the site into Wenham Lake, and to monitor groundwater quality for certain EPA priority pollutants to ensure that the illegal dumping at the site has not degraded Wenham Lake's watershed. Such an order will be drafted by the writer, and sent to the Department's Legal Office for review.

RJC/SJ/lu

File Copy

The Commonwealth of Massachusetts

Department of Environmental Quality Engineering
Metropolitan Boston - Northeast Region
5 Commonwealth Avenue
Woburn, Massachusetts 01801

S. RUSSELL SYLVA
Commissioner

935-2160

April 15, 1986

North Beverly Environmental
Action Committee
P.O.Box 8
Wenham, MA 01984

RE: BEVERLY - Vitale Dumpsite -
L.P. Henderson Rd. and
Cabot Street

Dear Ladies and Gentlemen:

Governor Dukakis has asked me to respond to your letter of December 19, 1985 regarding environmental concerns raised by citizens in the Wenham Lake area of Beverly. The Department of Environmental Quality Engineering (the Department) has re-opened the file on the subject site, located between the Beverly Airport and Wenham Lake in Beverly in response to your concerns.

This case had been brought to the attention of the Department as early as 1967 when the property owners, the Vitales, were filling in the site with flyash and solid waste, even though the site was not properly assigned for such use by the Beverly Board of Health. Since that time, State and local efforts to remediate site conditions have not been successful. Therefore, the Department has decided to bring enforcement action against the Vitales, and against the City of Beverly which took over the land in 1980 for non-payment of taxes. In the Orders, violations of laws regarding solid waste, wetlands, water supply, water pollution and hazardous waste were cited. The attached Administrative Orders will be enforced by the Department to the fullest extent of the law.

The Orders should be self-explanatory. Further actions relative to other environmental conditions in the area may ensue. If you have any questions with the Orders, please call Steve Johnson of my staff at 935-2160.

Thank you for your interest in this matter.

Very truly yours,

Richard J. Chalpin

Richard J. Chalpin
Acting Regional
Environmental Engineer

RJC/SJ/ae

cc: Governor Michael Dukakis
Secretary James S. Hoyte, Executive Office of Environmental Affairs
Commissioner S. Russell Silva, DEQE
Mr. Merrill S. Hohman, EPA

Attachment 5

NOV 15 1974

MEMORANDUM

Subject: Fly Ash Analysis

To: Joe Cassano

From: Joe Majewski

Date: Nov. 13, 1974

The analysis below is for a leachate from fly ash from the Salem power plant. The leachate was prepared in the laboratory by placing 100g ash and water in a flask to a total volume of 1 liter. After 12 hours, the aqueous fraction was filtered and analyzed for the following parameters:

pH	7.3	
Specific Conductance	12,000	
Alkalinity	40 mg/l	
Dissolved Solids	6,100	mg/l
Sodium	2,000	"
Potassium	100	"
Calcium	50	"
Magnesium	200	"
Chloride	3,300	"
Sulfate	300	"

The high sodium and chloride concentrations, and high ratio Mg/Ca ratio, suggest the presence of sea water.

FRAM Corporation / Industrial Division
Waste Treatment Systems
750 School St., Pawtucket, R. I. 02860 Tel. (401) 722-5000

CERTIFICATE OF ANALYSIS

Report to: New England Power Co.
20 Turnpike Road
Westboro, Mass. 01581
Attn: D.R. Campbell Hydraulic Eng.

Date Received 12/4/74
Date Reported 12/13/74
Purchase Order No. 188299
FRAM JOB NO. 10373

Sample Description One fly ash sample from the burning of coal at your Salem Harbor Station.

LEACHING TEST

The sample was dried at 120°C for eight hours. Four successive extractions were performed on a single 100.223 grm. portion of the dried sample. One liter of distilled water was used for each extraction and was allowed to contact the sample for 24 hours with continuous shaking. Each extract was filtered and the following tests were performed on the filtrate.

TEST	EXTRACT#1 mg/l	EXTRACT#2 mg/l	EXTRACT#3 mg/l	EXTRACT#4 mg/l
Dissolved Solids	2143	169	57	45
Alkalinity	31	25	21	19
Iron	< 0.11	< 0.11	< 0.11	< 0.11
Magnesium	61.90	7.55	3.30	2.41
Calcium	89.00	9.22	5.32	4.49
Sodium	558	39.2	4.01	2.30
Potassium	34.2	2.72	0.45	0.21
Manganese	< 0.054	< 0.054	< 0.054	< 0.054
Copper	< 0.08	< 0.08	< 0.08	< 0.08
Phosphorus	0.732	0.720	0.840	0.848
Silicate	4.75	4.30	3.55	3.25
Sulfate	213	20.3	4.2	4.7
Chloride	980	62	5	2

FRAM Corporation / Industrial Division
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20 Turnpike Rd.
Westboro, Mass. 01581

Date Received 12/4/74
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Purchase Order No. 188299
FRAM JOB NO. 10373

Sample Description One fly ash sample from the burning of coal at your Salem Harbor Station.

TEST	EXTRACT#1	EXTRACT#2	EXTRACT#3	EXTRACT#4
Specific Conductance	2760μMHO/cm	252.0μMHO/cm	64.00μMHC/cm	46.40μMHO/cm
pH	8.2 pH units	8.8 pH units	8.7 pH units	8.0 pH units

% water in sample as received 30.64%

Gross Analysis of Fly Ash Fines

The following tests were performed on the dried portion of the sample that passed #32 sieve.

% of sample passing #32 sieve 99.20%

Perchloric and Nitric acids were used to extract the following metals:

Copper	0.06 mg/gm
Calcium	6.21 mg/gm
Iron	21.24 mg/gm
Sodium	5.74 mg/gm
Potassium	2.48 mg/gm

Acetic acid Sodium acetate solution was used to extract Sulfate.

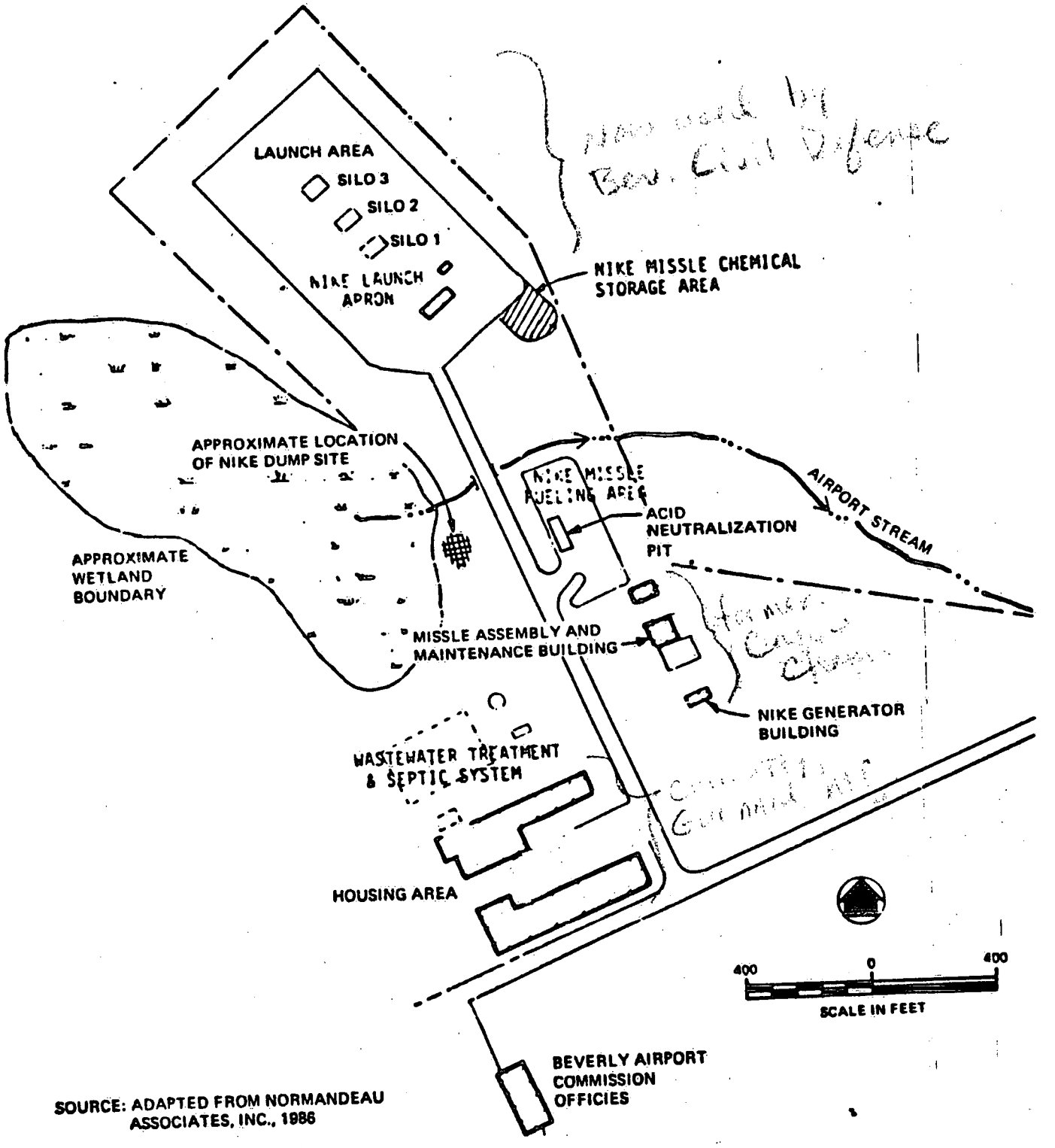
Sulfate	0.609 mg/gm

Distilled water was used to extract chloride.

Chloride	7.8455 mg/gm

**If you have any questions, please call me.

Approved By FRAM CORPORATION
David E. Berglund
Chief Chemist



SOURCE: ADAPTED FROM NORMANDEAU ASSOCIATES, INC., 1986

FIGURE 2. BASE MAP OF FORMER NIKE BATTERY B0 - 15 IN BEVERLY, MASSACHUSETTS.

CHECK APPROPRIATE BOX

☒ INCOMING PHONE CALL
☐ OUTGOING PHONE CALL
☐ CONFERENCE PHONE CALL
☐ [redacted] CONFERENCE
☐ VISIT
☐ ASSIGN[redacted]T

DATE	TIME	PHONE NO. (Include Area Code)	ROUTING
2/2/88	~~7~~		

TO: (Name, Agency, Firm, and Address)
~~Steve~~ D.J. Perree
Superfund Support Section
EPA

FROM: (Name, Agency, Firm, and Address)
Steve Johnson - MA DEQE (NERO)

PURPOSE OF CALL/VISIT/MEETING
Beverly Sites:
Vitale
Casco
Airport Sep. Sys.

SUMMARY

- ~~Steve~~ D & E agreed to do one SI for Vitale site and one SI including ~~encompassing~~ Casco, Airport Sep. System & Others (which will encompass old NIKE site.)

~~Steve~~ stated that ~~on~~ starting 2/3, DOD will start field work on NIKE site. Study will consist of 4 monitoring wells and 6 soil samples.

Concerning Fly Ash in Wenham Lake: Fly Ash has been ~~tested for metals~~ from 1970's to early 1980's & found no metals migrating into surface water.

- Other areas around these sites have also been discovered
  - 2 Fly Ash sites: 1 has low levels of solvents
  - TCE on separate airport property has been discovered

ACTION REQUIRED, INFORMATION OR MATERIALS PROVIDED, ETC.

Steve has agreed to "cc" me on all correspondence concerning these sites.

cc: Vitale File
Casco File
Airport ~~Septic~~ File

TYPED NAME & SIGNATURE
Deborah J. Dunn

DATE
2/2/88

CDC 80.9 (formerly 40.4)
8/82

X INCOMING PHONE CALL
— OUTGOING PHONE CALL
[redacted] RENCE PHONE CALL
[redacted] EETING/ CONFERENCE
☐ VISIT
☐ ASSIGNMENT

DATE: 2/2/88
TIME: ~~4~~ (?)
PHONE NO. (Include Area Code):

TO: (Name, Agency, Firm, and Address)
~~Steve~~ D.J. Perry
Superfund Support Section
EPA

FROM: (Name, Agency, Firm, and Address)
Steve Johnson - MA DEQE (NERO)

ROUTING

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Beverly Sites:
Vitale
Casco
Airport Sep. Sys.

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cc: Vitale File
Casco File
Airport Septic File

TYPED NAME & SIGNATURE
Deborah J. Quinn

DATE: 2/2/88

DC 80.9 (formerly 40.4)
32

BEVERLY - N.E.

WASTE WATER ANALYSIS
(mg. per liter)

Collector: JOHNSON

SOURCE A AIRPORT STREAM, #3 PT A
SOURCE B AIRPORT STREAM, #7 PT B
SOURCE C AIRPORT STREAM, #11 PT C
SOURCE D
SOURCE E
SOURCE F

	A	B	C	D	E	F
SAMPLE NO.	R15573	R15574	R15575			
DATE OF COLLECTION	04/08/86 →					
TIME OF COLLECTION	11:30	10:30	11:00			
DATE RECEIVED	04/08/86 →					
COD						
BOD						
PH						
ALKALINITY, TOTAL						
SUSPENDED SOLIDS						
TOTAL SOLIDS						
TOTAL KIELDAHL - N						
AMMONIA - N						
NITRATE - N						
TOTAL P						
TOTAL COLIFORM	91	930	2,400			
FECAL COLIFORM	<36	230	430			
CHLORIDE						